



Main Hawaiian Islands (MHI) Deep-7 Bottomfish Collaborative Fishery Monitoring PIFSC(JIMAR-WPacFIN) & Hawaii DAR



A TEAM EFFORT *summarized by*

M. Kimberly Lowe

PIFSC Insular Fisheries Monitoring Program

Monitoring MHI Deep-7 Bottomfish is a Collaborative State-Federal Effort

- State of Hawaii, DLNR, Division of Aquatic Resources (DAR) Staff
 - Statistician – Unit Supervisor
 - Statistical Clerk
 - Fishing Report Clerk
 - Fish Dealer Report Clerk
 - Licensing Clerk
- DLNR-DAR contracts HIC* for online data entry systems & data hosting services
- State of Hawaii Dept. Accounting & General Services (DAGS) provides in-house networking & systems support. (daily backups, etc.)

5 DAR Staff-100% FTE
(State & formerly IFA funded positions)

IT Systems + Data Host (2012 IFA & State funding, 2013 WPacFIN/State funding)

- PIFSC-JIMAR & Federal Data and Programming Support Staff
 - Fast Track Supervisor (1-100% FTDRS**)
 - Fisheries Database Technicians (3 – 100% FTDRS**)
 - Fish Dealer Report Data Support (1 – 100% FTE WPacFIN**)
 - Programming & IT Support for Data Access, Summary, Editing & Q/C systems
(2 – WPacFIN-JIMAR** ~33% FTE, 1 Federal ~25% FTE)

State of Hawaii Data Services Contractor

* Hawaii Information Consortium (HIC)

IFMP PIFSC-JIMAR Projects

* Hawaii DAR Fast Track Data & Reporting Support (FTDRS)








** Western Pacific Fisheries Information Network (WPacFIN)

PIFSC-JIMAR & Fedemps
Total ~6 - 100% FTE
(PIFSC funded)

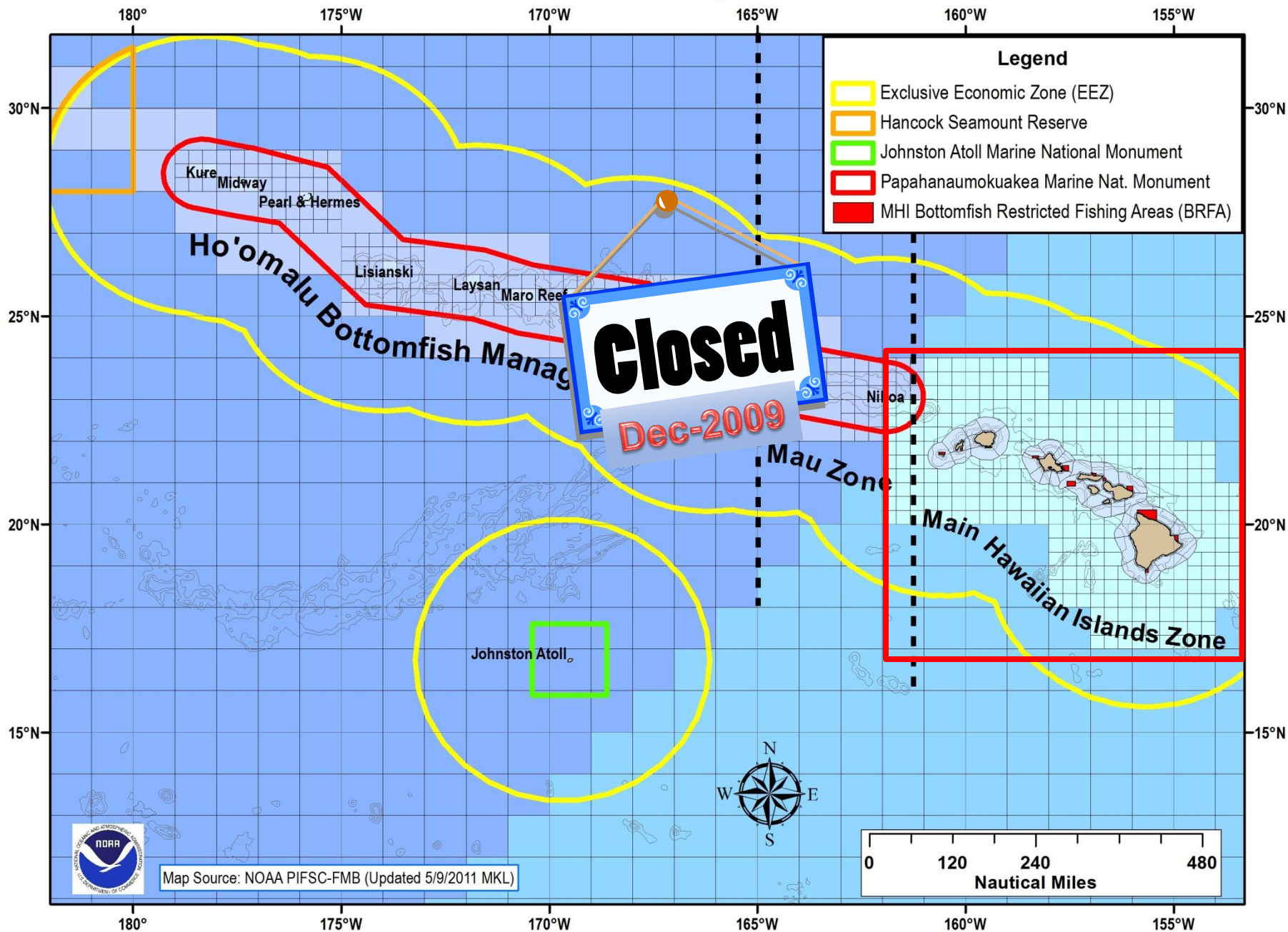
Two PIFSC Insular Fisheries Monitoring Program (IFMP) Projects Support MHI Deep 7 Bottomfish Monitoring

- Fast Track Data & Reporting Support (**Deep-7 Fast Track**) **ACL monitoring**
 - Staff working closely with fishermen & marine dealers to capture & q/c catch & effort data as quickly as possible (including data used for economic indicators)
 - Weekly reporting to scientists & managers for tracking & forecast
 - Outreach and information to fishermen
- The Western Pacific Fisheries Information Network (**WPacFIN**) provides software support for database & reporting systems managed by the Hawaii Division of Aquatic Resources (**DAR**) **Summary reporting existing data collections**
 - Works with DAR staff to create data access, editing, quality control and data summary programs (*used by Deep-7 & others*)
 - Works through DLNR-DAR with contractor HIC, which provides online data services (*daily downloads & q/c to WPacFIN Central*)
 - Supports monitoring efforts for all BMUS and many other species (online data summaries, Council Plan Team reports, etc.)
- **NEITHER PROJECT IS SPECIFICALLY DESIGNED TO COLLECT DATA FOR STOCK ASSESSMENT** (*but this is our most detailed PIR commercial fishery data*)
- IFMP manages Ad Hoc requests for nonconfidential data summaries and confidential access to PIFSC users with non-disclosure & authorization requirement from DAR

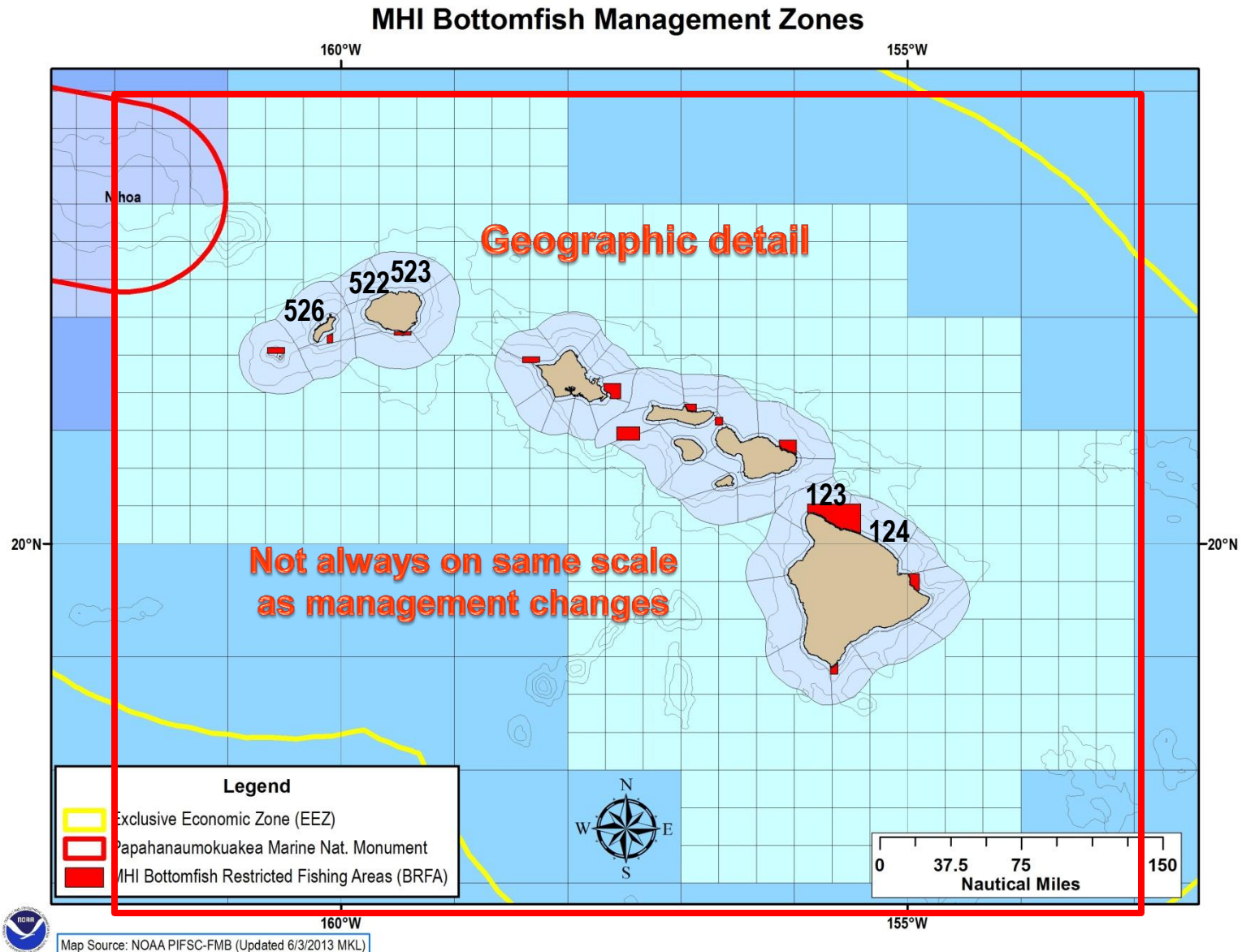
BMUS & Deep-7 Bottomfish Species

Bottomfish Management Unit Species (BMUS)		
	Common Local Name(s)	Scientific name
“DEEP 7” = Seven Main Bottomfish Species		
1	Ula’ula Koae/Onaga 	<i>Etelis coruscans</i>
2	Ehu 	<i>Etelis carbunculus</i>
3	Opakapaka 	<i>Pristipomoides filamentosus</i>
4	Kalekale 	<i>Pristipomoides seiboldii</i>
5	Gindai 	<i>Pristipomoides zonatus</i>
6	Lehi 	<i>Aphareus rutilans</i>
7	Hapu’upu’u 	<i>Hyporthodus quernus</i>
Other Bottomfish Management Unit Species (BMUS)		
Snappers		
8	Yellowtail Kalekale	<i>Pristipomoides auricilla</i>
9	Uku/Gray or green jobfish	<i>Aprion virescens</i>
10	Ta’ape/Bluestripe or blueline snapper	<i>Lutjanus kasmira</i>
Jacks & Trevallies: Ulua (adults)/Papio (juveniles)		
11	Aukea/White/Giant Trevally	<i>Caranx ignobilis</i>
12	Lā’uli/Gunkan/ Black Trevally	<i>Caranx lugubris</i>
13	Butaguchi/ Buta ulua	<i>Pseudocaranx cheilio</i>
14	Kāhala/Greater Amberjack	<i>Seriola dumerili</i>

Hawaii Bottomfish Management Zones



MHI Bottomfishing Zones & MPAs



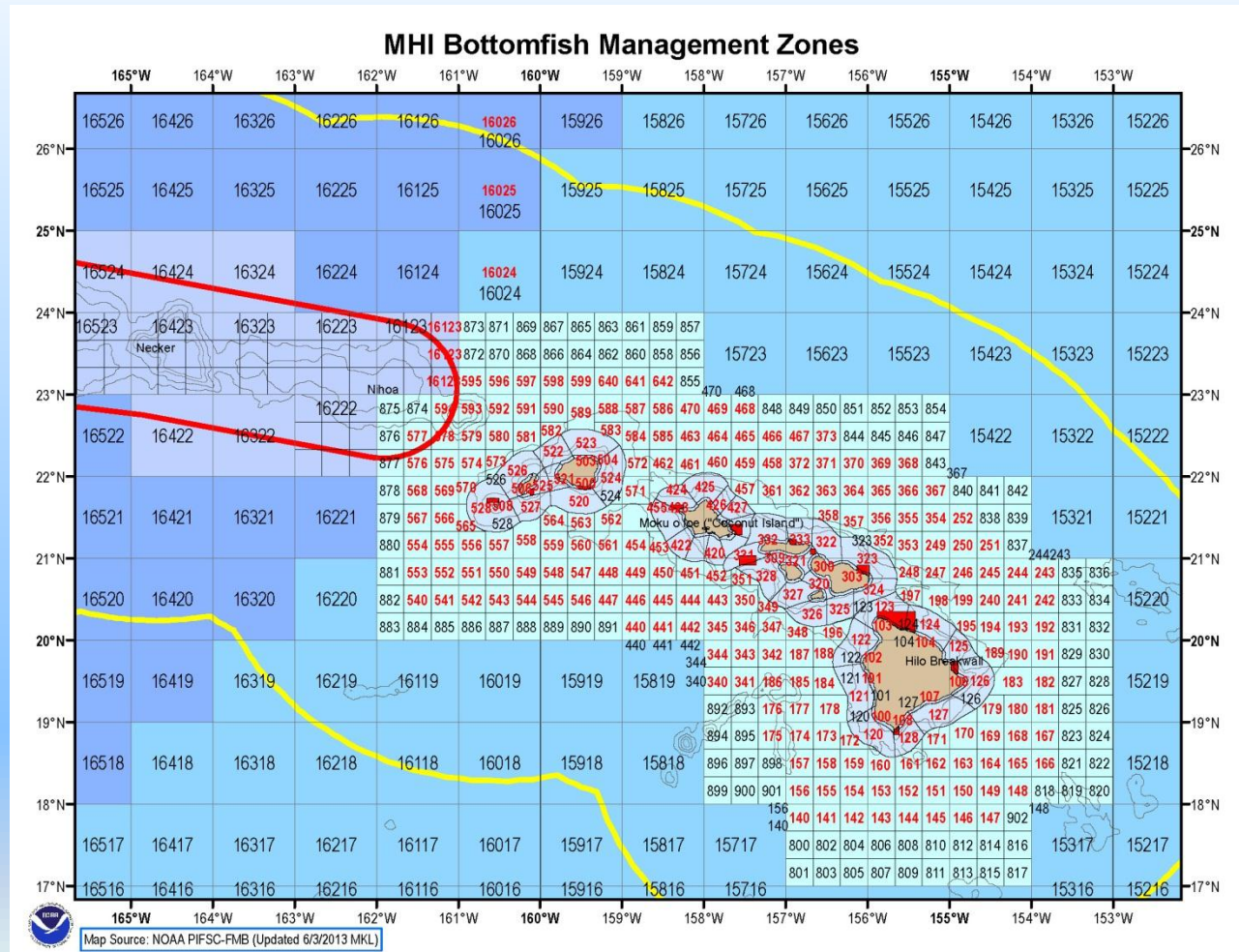
Challenges that May Affect Stock Assessment

- Effect of changing management on monitoring for stock assessment
 - ✓ Size regulations (fairly consistent for bottomfish)
 - ✓ Closed seasons/areas
 - Trends in total catch and CPUE
 - Completely closed NWHI fishery 2009 (effects on stocks unknown)
 - ✓ ACT/TAC/ACLs (have completely changed how this fishery performs)
 - Variable closures affecting seasons & pricing
 - Effort in response to management
- Changes in management affects
 - ✓ Number of participants
 - ✓ Reporting effort for fishers
 - ✓ Agency investment and processing requirements
- Focus on trip-level monitoring for Deep-7 may have affected reporting for non-Deep 7 species.

Challenges

- **Standardization of criteria for summary data & trend analysis...**
 - ✓ Areas included in MHI vs NWHI
 - ✓ Species included (Deep 7, BMUS, extended Seamount Groundfish)

- Stock assessments?
- Previous reports
- **BMUS reports**
- **Tracking MHI bottomfish**



Hawaii DAR - Data Processing Systems

- * ● Commercial Marine Licensing System (CMLS)
- * ● Fishermen Reporting System (FRS)
 - Online Fishing Report System (OFRS)
- * ● Fish Dealer Reporting System (FDRS)
- * ● Document Imaging Archival System (DIAS)

WPacFIN supported

Hawaii Deep-7 Bottomfish Monitoring Reporting & Compliance Management Measures

All commercial fishers and first-fish marine dealers are required to report their catch/sales *(includes sold to/purchased by)*.

Since September 1, 2011 (2011-2012 BF year):

- All fishers targeting Deep-7 bottomfish (commercial or non-commercial) are required to get a bottomfish vessel registration annually
- Fishers who land Deep-7 bottomfish are required to submit a trip report within 5 days of the trip end date

479 Deep-7 Bottomfishers 2012

77% compliance as of 2/2013

432 Deep-7 Bottomfishers thus far 2013

66% compliance as of 6/2013

Since September 1, 2012 (2012-2013 BF year):

- Civil Resource Violation System notices are sent to commercial bottomfishers who submit the trip report late (incremental fine structure).

Bottomfish Fast-Track Monitoring Data Processing

● Mails Paper Report

● 1-3 days travel time

3-7 days

● Received by DAR

● Scanned

● DAR staff enters online (within 2 days)

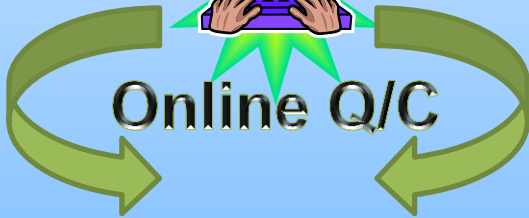
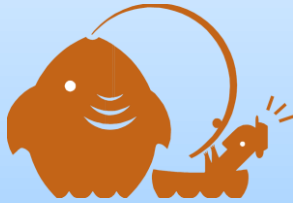
Online Data
Downloaded
Daily to FRS

to further Q/C
& reporting

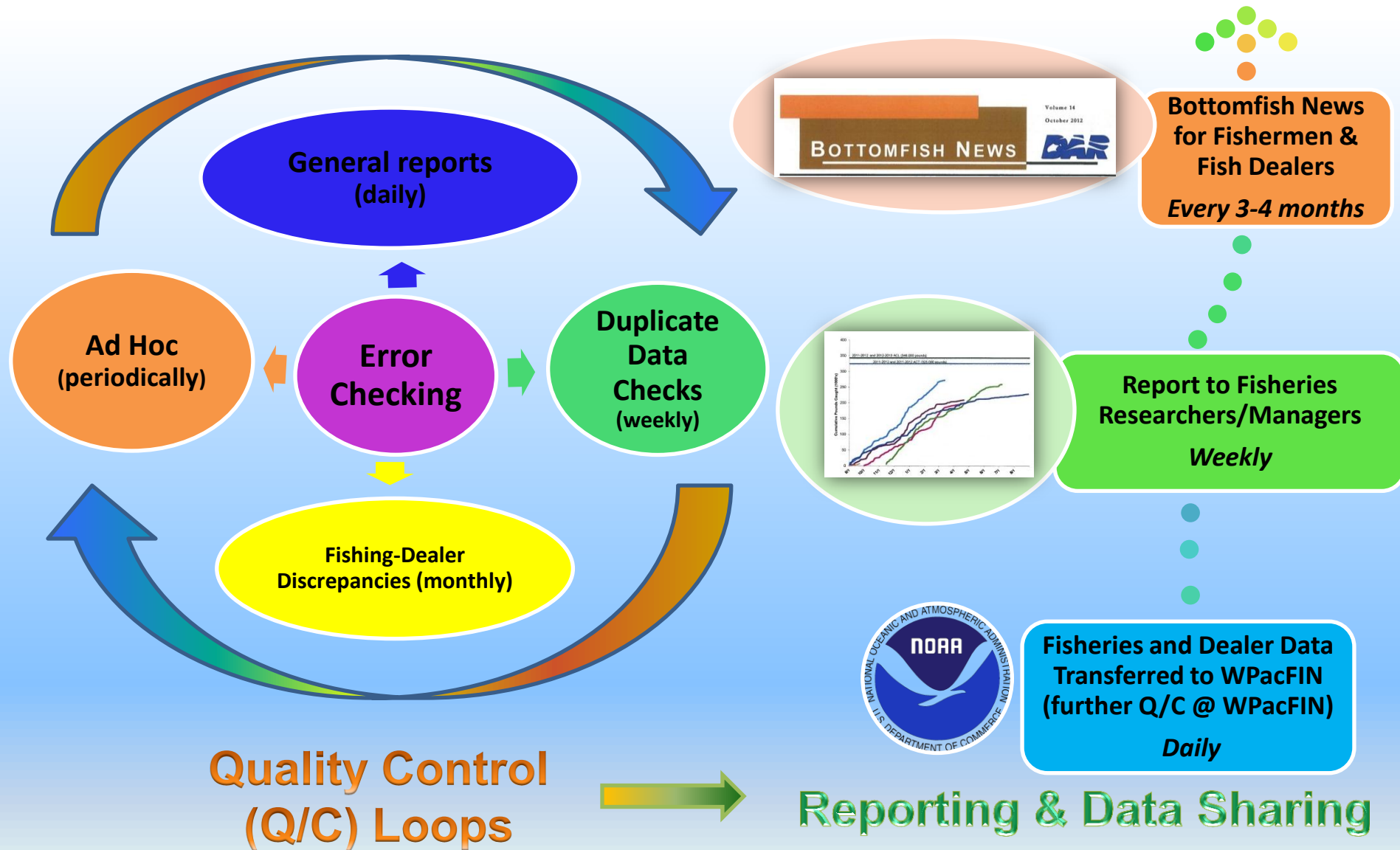
Online Q/C

Submits Report Online

1 day



Bottomfish Monitoring Data Processing (cont'd)



Reports to Managers:

Cumulative Catch Numeric Summary

WPacFIN Automated Reports (1 of 4)

Month	Deep 7	Fishing Report				Dealer Report				
		no. fishers	no. trips	pieces	lbs.	no. fishers	no. dealers	pieces	lbs. sold	value
Sep-12	Opakapaka	67	113	1,884	5,416	56	17	1,509	4,457	\$30,178
	Onaga	56	87	875	4,730	40	15	682	3,746	\$30,438
	Ehu	66	104	939	2,009	42	14	603	1,378	\$8,754
	Lehi	15	17	29	275	15	8	23	245	\$1,046
	Hapuupuu	17	26	105	504	15	9	78	405	\$2,185
	Kalekale	40	68	477	866	27	9	312	665	\$3,209
	Gindai	21	27	118	243	16	6	41	131	\$690
	SUM	105	193	4,427	14,043	80	23	3,248	11,027	\$76,500
Oct-12	Opakapaka	107	191	3,542	11,405	96	26	3,047	10,629	\$66,737
	Onaga	87	161	1,574	8,637	77	27	1,464	8,461	\$59,467
	Ehu	96	159	1,471	3,487	73	22	1,052	2,834	\$14,403
	Lehi	24	28	62	562	26	9	98	607	\$2,786
	Hapuupuu	38	53	154	2,256	41	13	167	2,350	\$13,811
	Kalekale	68	110	806	1,451	53	17	665	1,378	\$5,315
	Gindai	40	52	168	402	31	12	136	383	\$1,739
	SUM	170	338	7,777	28,200	139	32	6,629	26,640	\$164,257
Nov-12	Opakapaka	126	217	4,014	13,913	83	24	2,514	8,671	\$54,398
	Onaga	83	130	1,558	7,752	52	20	1,119	5,656	\$40,418
	Ehu	110	168	1,607	3,410	47	18	685	1,431	\$8,369
	Lehi	38	51	123	1,139	20	10	66	626	\$2,902
	Hapuupuu	38	46	119	1,626	21	10	65	1,268	\$6,710
	Kalekale	65	88	1,126	2,189	32	15	502	1,034	\$4,052
	Gindai	47	58	198	426	18	11	79	206	\$1,002
	SUM	191	335	8,745	30,455	113	30	5,030	18,892	\$117,852
Dec-12	Opakapaka	157	280	4,671	15,766	126	40	4,118	14,853	\$95,383
	Onaga	124	238	2,870	13,417	96	29	2,720	13,188	\$118,038
	Ehu	149	260	2,526	5,275	106	28	1,817	3,869	\$27,105
	Lehi	43	69	237	2,098	39	14	174	1,610	\$7,552
	Hapuupuu	49	58	100	1,184	46	19	95	1,188	\$7,749
	Kalekale	100	157	1,315	2,163	72	22	957	1,928	\$7,817
	Gindai	68	94	326	731	38	14	144	421	\$2,124
	SUM	250	513	12,045	40,634	183	45	10,025	37,057	\$265,767
Jan-13	Opakapaka	120	237	3,624	12,661	91	26	2,879	10,047	\$70,778
	Onaga	92	151	1,584	7,581	74	26	1,397	6,504	\$53,351
	Ehu	96	157	1,309	2,996	64	23	789	2,008	\$12,085
	Lehi	36	64	331	2,140	33	18	265	1,852	\$9,839
	Hapuupuu	36	46	77	902	23	12	62	684	\$4,054
	Kalekale	72	112	769	1,409	46	16	493	968	\$4,000
	Gindai	35	52	156	375	20	10	52	239	\$1,179
	SUM	169	352	7,850	28,064	135	38	5,937	22,301	\$155,285
Feb-13	Opakapaka	37	58	580	2,000	35	12	676	2,260	\$19,144
	Onaga	17	28	360	1,331	16	8	342	1,380	\$13,080
	Ehu	31	45	397	814	27	13	334	789	\$6,145
	Lehi	11	14	39	341	8	5	38	324	\$1,730
	Hapuupuu	11	12	20	191	10	6	12	136	\$1,010
	Kalekale	28	33	197	237	23	9	124	186	\$918
	Gindai	18	20	47	98	14	8	24	77	\$443
	SUM	63	100	1,640	5,012	55	19	1,550	5,151	\$42,470

Month	Deep 7	Fishing Report				Dealer Report				
		no. fishers	no. trips	pieces	lbs.	no. fishers	no. dealers	pieces	lbs. sold	value
Mar-13	Opakapaka	118	245	4,347	15,782	99	24	3,619	13,529	\$95,770
	Onaga	77	166	2,103	10,378	61	19	1,798	8,750	\$69,044
	Ehu	88	176	1,835	3,713	58	18	1,208	2,666	\$16,081
	Lehi	38	71	422	3,271	33	13	413	2,963	\$15,189
	Hapuupuu	35	47	94	1,159	21	10	68	867	\$4,222
	Kalekale	66	116	632	1,141	44	17	448	826	\$3,665
	Gindai	35	51	154	309	23	11	115	235	\$1,269
	SUM	162	382	9,587	35,753	130	27	7,669	29,836	\$205,241
Apr-13	Opakapaka	74	142	2,123	8,473	58	16	1,934	7,841	\$55,956
	Onaga	61	111	1,230	6,054	49	14	1,133	5,393	\$44,542
	Ehu	75	141	1,551	3,437	46	16	1,114	2,646	\$16,259
	Lehi	18	31	189	1,690	15	8	171	1,574	\$7,764
	Hapuupuu	23	35	104	1,538	22	11	119	1,453	\$8,423
	Kalekale	51	91	690	1,271	36	12	545	1,032	\$4,461
	Gindai	33	45	153	350	21	6	98	267	\$1,434
	SUM	117	250	6,040	22,812	86	24	5,114	20,205	\$138,839
May-13	Opakapaka	54	92	1,032	4,092	41	7	835	3,310	\$23,373
	Onaga	40	73	750	3,795	33	7	702	3,648	\$31,636
	Ehu	67	117	1,139	2,651	41	8	808	1,827	\$10,102
	Lehi	18	34	126	1,005	15	6	74	680	\$3,105
	Hapuupuu	20	27	49	571	15	8	38	413	\$2,719
	Kalekale	37	54	244	453	22	6	218	387	\$1,489
	Gindai	26	31	64	155	11	3	45	96	\$508
	SUM	96	195	3,404	12,722	69	9	2,720	10,362	\$72,933
Jun-13	Opakapaka	6	11	72	230	*	*	*	*	*
	Onaga	*	*	*	*	*	*	*	*	*
	Ehu	8	9	70	131	*	*	*	*	*
	Lehi	2	4	27	136	*	*	*	*	*
	Hapuupuu	*	*	*	*	*	*	*	*	*
	Kalekale	6	6	14	28	*	*	*	*	*
	Gindai	3	3	7	15	*	*	*	*	*
	SUM	11	17	190	540			0	0	\$0
TOTAL	Opakapaka	323	1,583	25,889	89,738	269	50	21,131	75,597	\$511,715
	Onaga	233	1,147	12,904	63,674	175	42	11,357	56,726	\$460,013
	Ehu	294	1,336	12,844	27,922	204	36	8,410	19,449	\$119,304
	Lehi	122	383	1,585	12,657	110	25	1,322	10,481	\$51,915
	Hapuupuu	150	351	822	9,932	126	26	704	8,765	\$50,883
	Kalekale	219	835	6,270	11,210	161	28	4,264	8,403	\$34,925
	Gindai	174	433	1,391	3,104	108	26	734	2,053	\$10,388
	SUM	437	2,672	61,705	218,236	335	58	47,922	181,472	\$1,239,144

Data as of 06/14/13 at 04:00 pm

* Less than 3 fishers or dealers

ACT: 325,000 67.1%

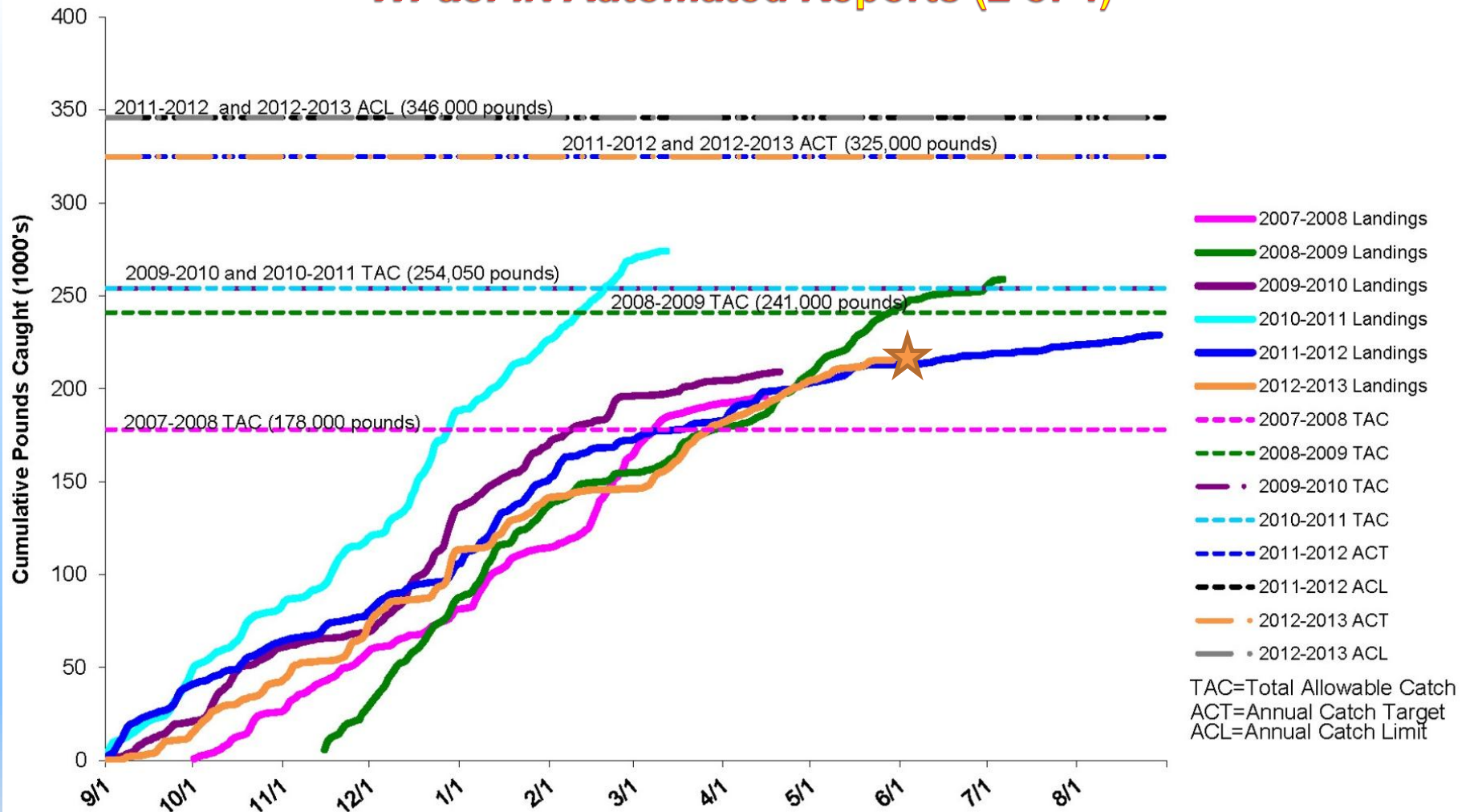
ACL: 346,000 63.1%

Total Landings Reported by Fishers from September 2012 to Present:

218,236 67.1% of ACT

Reports to Managers: Trends in the Fishery

WPacFIN Automated Reports (2 of 4)



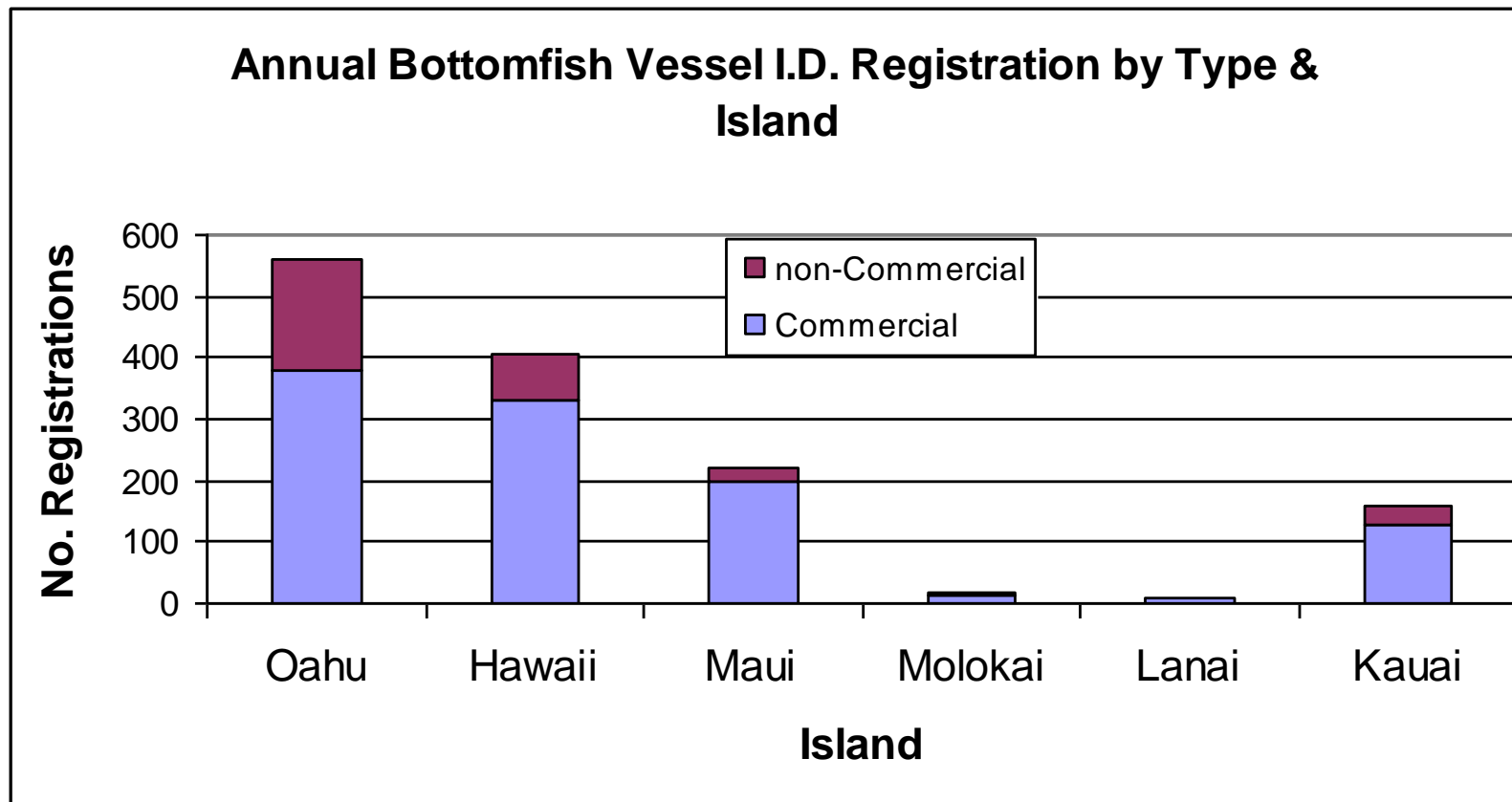
Challenges

- **Cost of excellent monitoring has been great (\$300K+ in staffing and grants to DAR annually), but has greatly improved accuracy and timeliness of data for almost all of Hawaii's commercial fisheries (from months to days).**
 - ✓ Funding is always in jeopardy
 - ✓ One of the most valuable aspects is outreach, which increases fishermen's commitment to the process.
- **How well do reported estimates track this fishery?**
 - ✓ Marine dealer data, used in quality control and integration (for weights), received with a >1-month time lag
 - ✓ Commercial fishery monitoring only
- **The primary PIFSC issue has been post-DAR speed of delivering confidential data to stock assessment group**
 - ✓ Clarity & communication of request has been deficient.
 - ✓ Tracking improvements - use of established system (DARTS) or adoption of a new system (JIRA)
 - ✓ Data transfer currently via network (slow and confidentiality issues) or manual.
 - ✓ Hardware limited (working on speed of network transfer to Oracle)

Questions and Discussion?



Bottomfish Vessel Registrations by Island*



23% are non-commercial

77% are commercial

** Information updated in June 2012*